MP MASTER
MA28841

INSTRUCTION MANUAL

REGULATED POWER SUPPLIES

LOS W SERIES

SPECIFICATIONS AND FEATURES

DC OUTPUT — Voltage regulated for line and load. For voltage and current ratings see table I below.

TABLE I

MODEL	VOLTAGE RANGE	MAXIMUM CURRENT (AMPS) AT AMBIENT TEMPERATURE		
		40°C	50°C	60°C
LOS-W-2	2 ± 5%	12.0	10.5	8.5
LOS-W-5	5 ± 5%	12.0	10.5	8.5
LOS-W-6	6 ± 5%	10.0	9.0	7.3
LOS-W-12	12 ± 5%	7.0	5.8	4.6
LOS-W-15	15 ± 5%	6.3	5.2	4.0
LOS-W-20	20 ± 5%	5.2	4.2	3.2
LOS-W-24	24 ± 5%	4.8	3.8	2.8
LOS-W-28	28 ± 5%	4.2	3.3	2.4

Current range must be chosen to suit the appropriate maximum ambient temperature. Current ratings apply for entire voltage range.

REGULATED VOLTAGE OUTPUT

Regulation (line) ..... 0.15% for input variations from 105-125, 125-105, 210-250, or 250-210 volts AC.

Regulation (load) ..... 0.15% for load variations from no load to full load or full load to no load.

Ripple and Noise ..... 1.5mV rms, 5mV peak to peak with either positive or negative terminal grounded.

Temperature Coefficient ..... 0.03%/°C

Remote Programming

External Resistor

LOS-W-2 ..... Nominal 1000 ohms/volt output. The programming coefficient is negative. Increasing resistance decreases output voltage. Use a low temperature coefficient resistor to assure most stable operation.

LOS-W-5 through LOS-W-28 ..... Nominal 200 ohms/volt output. Increasing resistance increases output voltage. Use a low temperature coefficient resistor to assure most stable operation.

Programming Voltage ..... One-to-one voltage change. The programming supply must have a reverse current capability of 6 ma min. Programming supply need not have reverse current capability when programming LOS-W-2.

Remote Sensing ..... Provision is made for remote sensing to eliminate the effect of power output lead resistance on DC regulation. Sensing leads should be a twisted pair to minimize AC pickup. A 2.5 mf elect. capacitor may be required between output terminals and sense terminals to reduce noise pickup.

OVERSHOOT — No overshoot under conditions of power turn-on, turn-off, or power failure

AC INPUT — 105-125 or 210-250 volts AC at 47-440 Hz. Standard LOS-W power supplies are factory wired for 105-125 volt input but are available factory wired for 210-250 volt input on request. See figure 1 and schematic diagram for rewiring of AC input. Input power: 240 Watts*. Ratings apply for 57-63 Hz input. For 47-53 Hz input derate current 10% for each ambient temperature given in table I. For 63-440 Hz input consult factory.
*With output loaded to full current rating and input voltage 125 volts AC, 60 Hz.

OVERLOAD PROTECTION — Automatic electronic current limiting circuit, limits output current to a safe value, protecting load and power supply when external overloads and direct shorts occur.

INPUT AND OUTPUT CONNECTIONS — See outline drawing for location.

AC input	Terminals on transformer
Ground	Terminal on transformer
DC output	Turret terminal on printed circuit board
Sensing	Turret terminal on printed circuit board
Overvoltage Protector	Quick disconnect terminal on printed circuit board with mating connector attached.

OPERATING AMBIENT TEMPERATURE RANGE AND DUTY CYCLE — Continuous duty from 0°C to +60°C ambient with corresponding load current ratings for all modes of operation.

STORAGE TEMPERATURE — -20°C to +85°C

DC OUTPUT CONTROL — Screwdriver voltage adjust control permits adjustment of DC output voltage. See outline drawing for location of control.

GUARANTEE — 60 day guarantee from date of shipment ..... materials and labor.

PHYSICAL DATA

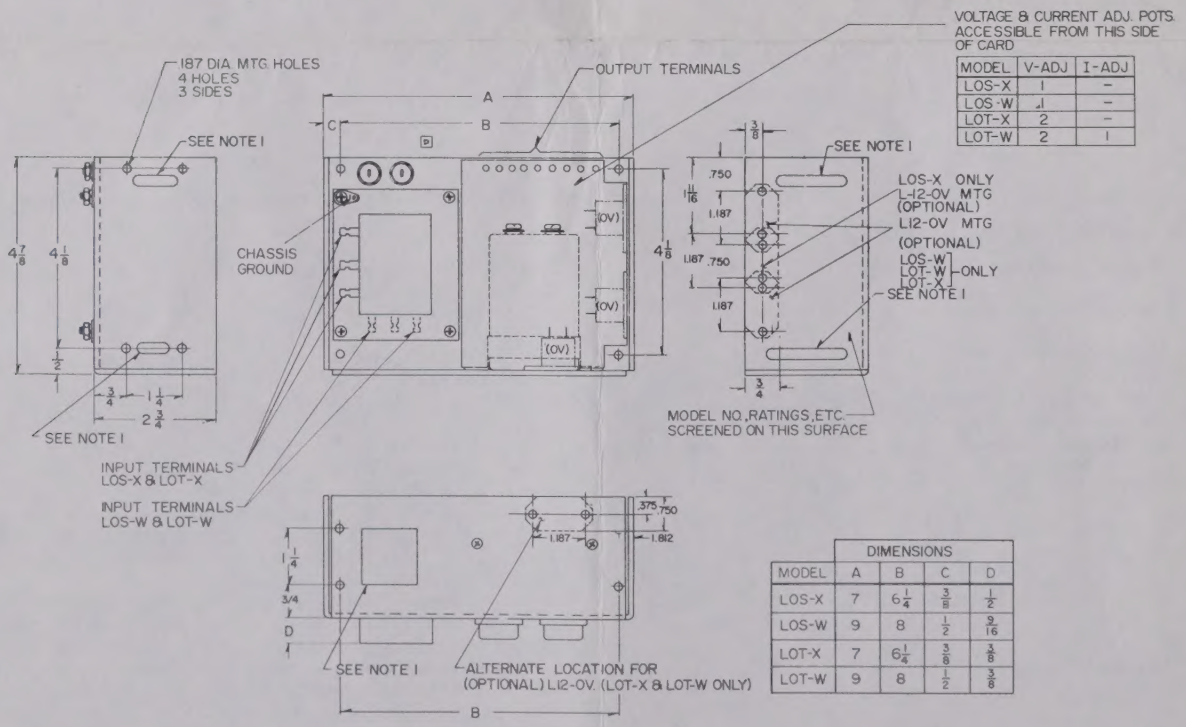
Size	9" x 4-7/8" x 2-3/4"
Weight	7-3/4 lbs. net; 8-1/4 lbs. shipping
Finish	Gray, FED. STD. 595 No. 26081

MOUNTING — Three surfaces, each with clearance mounting holes, can be utilized for mounting this unit. Transistors, diodes, and SCR's mounted on chassis must not contact any conductive material. Air circulation is required when unit is mounted in confined areas. Refer to Outline Drawing for mounting details.

"J" OPTION — Standard LOS power supplies can be obtained for 90-110 VAC, 47-440 Hz input. For 47-53 Hz input derate current 10% for each ambient temperature given in table I. For 63-440 Hz input consult factory.

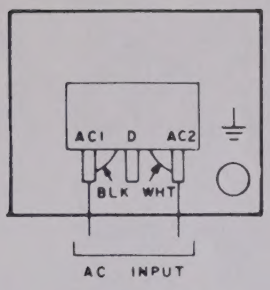
ACCESSORIES

Overvoltage Protector	Internally mounted L-12-OV series Overvoltage Protectors are available for use with all models.


VOLTAGE & CURRENT ADJ. POTS ACCESSIBLE FROM THIS SIDE OF CARD
MODEL | V-ADJ | I-ADJ
LOS-X | 1 | –
LOS-W | 1 | –
LOT-X | 2 | –
LOT-W | 2 | 1
.187 DIA. MTG. HOLES 4 HOLES 3 SIDES
SEE NOTE 1
OUTPUT TERMINALS
A
B
C
CHASSIS GROUND
(OV)
LOS-X ONLY L-12-OV MTG (OPTIONAL)
L12-OV MTG (OPTIONAL)
LOS-W LOT-W LOT-X ONLY
MODEL NO., RATINGS, ETC. SCREENED ON THIS SURFACE
INPUT TERMINALS LOS-X & LOT-X
INPUT TERMINALS LOS-W & LOT-W
SEE NOTE 1
ALTERNATE LOCATION FOR (OPTIONAL) L12-OV. (LOT-X & LOT-W ONLY)
B
D
DIMENSIONS
MODEL | A | B | C | D
LOS-X | 7 | 6 1/4 | 3/8 | 1/2
LOS-W | 9 | 8 | 1/2 | 9/16
LOT-X | 7 | 6 1/4 | 3/8 | 3/8
LOT-W | 9 | 8 | 1/2 | 3/8

Outline Drawing

W&S 7-4121



* AC INPUT CONNECTION SHOWN IS FOR 105-125VAC FOR 210-250V INPUT, DISCONNECT BLK & WHT TRANFORMER LEADS FROM TERMS AC1 & AC2 AND RECONNECT BOTH LEADS TO TERM D

Figure 1. AC Input Connection.

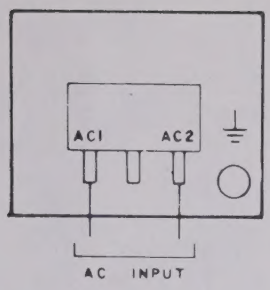
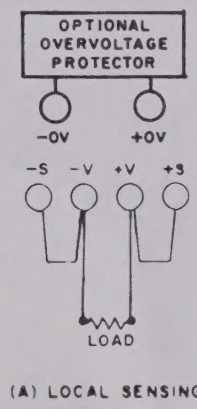


Figure 2. AC Input Connection, "J" Option.



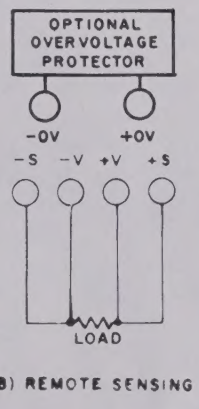
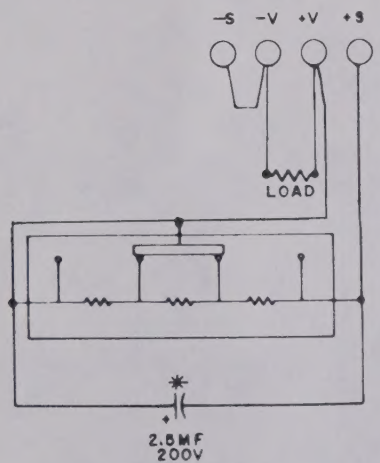
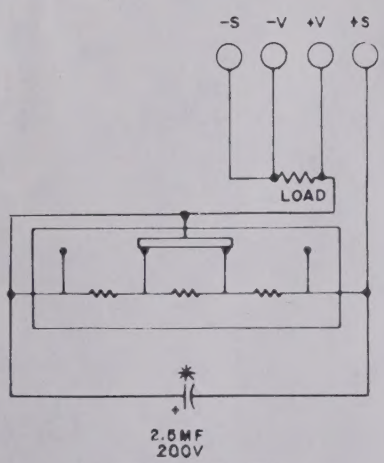


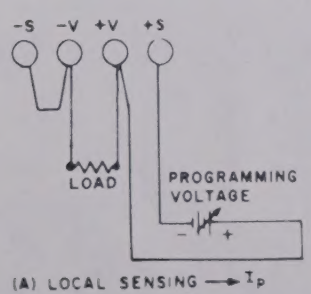
Figure 3. DC Output Connection.





* CAP. POLARITY MUST BE REVERSED FOR MODEL LOS-W-2.

Figure 4. Programmed Voltage, With External Resistor



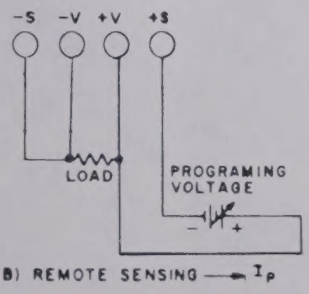
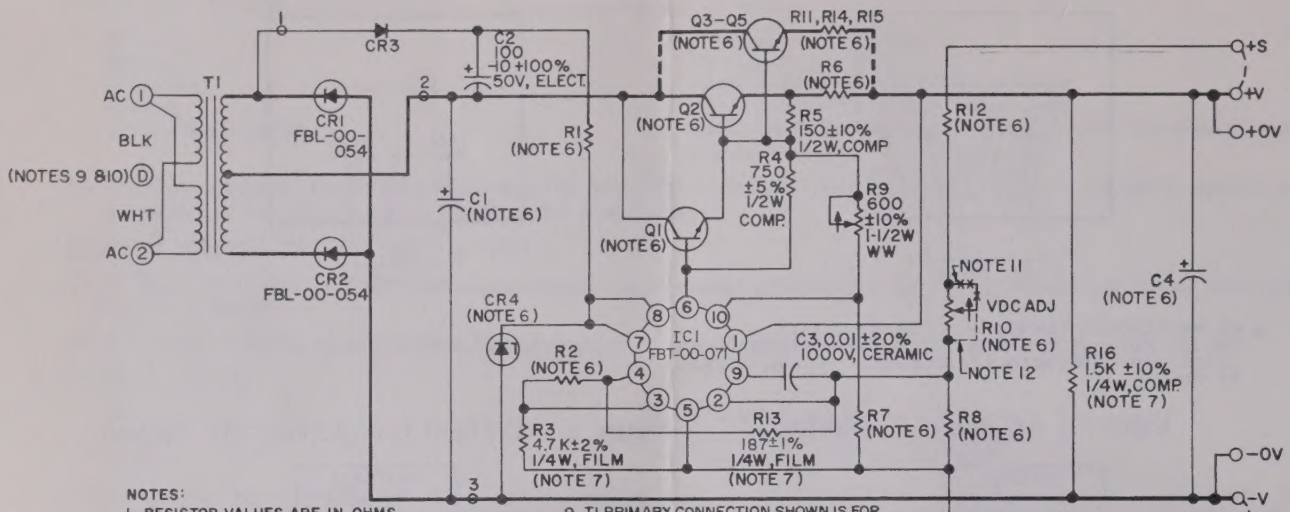


Figure 5. Programmed Voltage, With External Programming Voltage Source.



NOTES:

1. RESISTOR VALUES ARE IN OHMS.
2. CAPACITOR VALUES ARE IN MICROFARADS.
3. DESIGNATIONS ARE LAMBDA PART NUMBERS.
4. SYMBOLS:
   - INDICATES CLOCKWISE ROTATION OF SHAFT.
   - INDICATES CONNECTION TO CHASSIS.
   - LAMBDA PART NO. FBL-00-030; USE IN4002 DIODE FOR REPLACEMENT UNLESS OTHERWISE NOTED.
   - INDICATES TERMINAL ON PRINTED CIRCUIT BOARD.
   - INDICATES ACTUAL UNIT MARKING.
5. FOR OPERATION AT 47-53Hz, DERATE CURRENT BY 10%. FOR OPERATION AT 63-440Hz, CONSULT FACTORY.
6. SEE TABLE II FOR COMPONENT VALUES.
7. R3, R13, & R16 ONLY USED ON MODEL LOS-W-2.
8. CR4 ONLY USED ON MODELS LOS-W-12 THRU LOS-W-28.
9. T1 PRIMARY CONNECTION SHOWN IS FOR 105-125VAC INPUT. FOR 210-250 VAC INPUT: DISCONNECT BLK & WHT TRANSFORMER LEADS FROM TERM'S. AC1 & AC2 AND RECONNECT BOTH LEADS TO TERM D.
10. "J" OPTION UNITS HAVE SINGLE T1 PRIMARY. AC INPUT IS 90-110 VAC.
11. NOT USED ON MODEL LOS-W-2.
12. ONLY USED ON MODEL LOS-W-2.

FOR WIRING OF POWER SUPPLY TO LOAD REFER TO SUPPLY-TO-LOAD WIRING DIAGRAMS.

DOTTED CONNECTIONS SHOWN INDICATE JUMPERS IN PLACE FOR LOCAL SENSING CONNECTION.

SCHEMATIC DIAGRAM
REGULATED POWER SUPPLY
MODELS
LOS-W SERIES

LAMBDA
ELECTRONICS
MELVILLE, NEW YORK
DIVISION OF Veeco INSTRUMENTS INC.

TABLE II
SCHEMATIC DATA REFERENCES
MODELS LOS-W-2 THRU LOS-W-28

Models	Schematic Components												
	C1	C4	CR4	Q1-Q4**	R1	R2	R6	R7	R8	R10	R11	R12	R14
	-10+100% ELECT	-10+75% ELECT	*FBM-	*FBN-		±1% 1/4W FILM	±5% WW	1/2W COMP	FILM	±10% 1-1/2W WW	±5% WW	1/4W FILM	±5% WW
LOS-W-2	34,000 mf 15 vdc	600 mf 16 vdc	Not Used	L157	200±5% 1/2W COMP	562	0.10 3W	1.8K ±10%	4.7K ±2% 1/4W	1.2K	0.10 3W	Jumper	0.10 3W
LOS-W-5	34,000mf 15 vdc	600 mf 16 vdc	Not Used	L157	200±5% 1/2W COMP	221	0.10 3W	2.2K ±5%	470 ±5% 1/2W	1.2K	0.10 3W	Jumper	0.10 3W
LOS-W-6	34,000 mf 15 vdc	600 mf 16 vdc	Not Used	L157	300±5% 1/2W COMP	221	0.10 3W	2.2K ±5%	470 ±5% 1/2W	1.2K	0.10 3W	Jumper	0.10 3W
LOS-W-12	22,000 mf 30 vdc	350 mf 25 vdc	Z154	L156	1.5K±3% 3W WW	221	0.15 2W	5.6K ±10%	470 ±5% 1/2W	1.8K	0.15 2W	768 ±1%	0.15 2W
LOS-W-15	22,000 mf 30 vdc	350 mf 25 vdc	Z105	L156	1.8K±3% 3W WW	221	0.15 2W	7.5K ±5%	470 ±5% 1/2W	1.8K	0.15 2W	1.21K ±1%	0.15 2W
LOS-W-20	12,500 mf 50 vdc	250 mf 50 vdc	Z127	L156	2.5K±3% 3W WW	221	0.15 2W	10K ±5%	470 ±5% 1/2W	5.0K	0.15 2W	2.2K ±2%	Not Used
LOS-W-24	12,500 mf 50 vdc	250 mf 50 vdc	Z143	L156	3.6K±3% 3W WW	221	0.15 2W	13K ±5%	470 ±5% 1/2W	5.0K	0.15 2W	3.01K ±1%	Not Used
LOS-W-28	12,500 mf 50 vdc	250 mf 50 vdc	Z143	L156	5K±3% 3W WW	221	0.15 2W	15K ±5%	470 ±5% 1/2W	5.0K	0.15 2W	3.48K ±1%	Not Used

*Lambda part no.
**Q4 not used on Models LOS-W-20, -24, -28

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